BEYOND MIRS – New Directions for Program Evaluation: Pilot Project Backgrounder

June 20, 2003

For more information, contact Dr. John Burger (780-422-0999) email: john.burger@gov.ab.ca or Mr. Brian Perry (780-427-3215) email – brian.perry@gov.ab.ca

John and Brian are Senior Managers in the System Improvement and Reporting Division of Alberta Learning.

Alberta
EDUCATION

105-04254/

Table of Contents

Executive Summary ii
Background 1
The Problems With MIRS 1
Purposes of Program Evaluation 2
The Case for Grade Level Achievement Data – Psychometric Issues 2
Quality Control 4
Organizational and Technical Issues 5
Data Utility 5
Recommendations 7
Appendix A 8
References 9

Executive Summary

The development of the Management Information Reporting Schedules (MIRS) grew out of a need to obtain information on the impacts on student achievement of targeted funding programs such as the Early Literacy Initiative (ELI) and Technology Integration Funding (TIF), English as a Second Language (ESL) and Special Education (SP. Ed.).

The ad hoc nature of collecting program evaluation data through the MIR Schedules, however, imposes a significant reporting burden on schools and jurisdictions. Also, much of the information is of questionable value for evaluative purposes, as most of the funded programs work in concert with other factors to influence student outcomes. Therefore, a need was identified to develop a more efficient and integrated model of student information that will meet a comprehensive set of information requirements at multiple levels of the education system, including the need to evaluate program effectiveness or how well particular program interventions are working for subsets of the student population in response to student needs. This need is highly congruent with the recommendations in the Data Collection Initiative report (p. 3) to develop data standards across the system and to standardize special initiative reporting systems. Any new data collection and use will be compliant with FOIP requirements, and congruent with new directions in funding.

The MIRS Next Generation sub-committee consisting of school jurisdiction and Ministry representatives designed a proposed program evaluation model as a replacement for MIRS. In this context program evaluation is defined as assessing the strengths and weaknesses of funded education programs and their responsiveness to meeting students' needs, as a means to improve the effectiveness of program interventions.

This sub-committee recognized that further consultation would be required to inform the implementation planning process. This paper is designed to facilitate and inform the consultation process by further defining the proposed program evaluation model and posing questions that require the input and insight of Alberta Learning's stakeholders through a pilot project to assess the viability, risks and benefits of proceeding with model development.

BEYOND MIRS – New Directions for Program Evaluation

Background

Alberta Learning's Information Reporting Committee established a sub-committee in the fall of 2000 to consider alternative approaches to program evaluation contrasting with the methods employed by the Management Information Reporting Schedules (MIRS). MIRS was viewed by the Information Reporting Committee as both an inefficient and marginally effective approach to program evaluation. The MIRS Next Generation sub-committee was comprised of representatives from four school boards, primarily secretary-treasurer and systems analysts, and Alberta Learning managers from System Improvement and Reporting (SIR) Information and Strategic Services (ISS) and Basic Learning Divisions. The sub-committee met five times beginning November 12, 2000 and ending May 24, 2001 to consider alternatives to the MIR Schedules and to conduct site visits to each school board and to Alberta Learning's Information and Strategic Services Division to gain first-hand insight into the issues affecting management of student information in relationship to program evaluation needs. The outcomes of the sub-committees deliberations were represented in the report, ***MIRS Next Generation: Design Principles for a Learner Results Database for Improved Program Evaluation***. The report was presented to the Information Reporting Committee on June 15, 2001 and was endorsed by that Committee, and was then tabled with Alberta Learning's Executive Team where it was referred to Basic Learning for response. That response has resulted in this new document intended to serve as both a blueprint for revisions to the Ministry's approach to program evaluation and as a consultative document for stakeholder reaction and input to the directions outlined herein.

The Problems with MIRS

The first round of MIRS in 1998-99 demonstrated that some program initiatives, such as the Early Literacy Initiative, were associated with interventions so intertwined with other instructional strategies, that to isolate the program effect through data collected via uncontrolled evaluation design effected through data schedules were ineffective. Alternative, focused evaluation designs are necessary to isolate and assess the program's impact.

Other programs, such as special education funding and English as a Second Language funding provide much more focused and specific program interventions for students and these programs are more accurately assessed through data collection schedules, such as MIRS. However, even these schedules lack adequate controls to ensure the quality of the data that is submitted or to isolate the specific interventions. The MIR Schedules also have the disadvantage of being an ad hoc intrusion on the already heavy administrative workloads of school and central office staff.

Purposes of Program Evaluation

Alberta Learning creates specific program funding primarily to more effectively respond to the learning needs of students. In basic learning these programs range from early childhood to the end of grade 12. The basic instructional grant for students in grades 1-9, in 2003-04 is $4 454 and provides the funding required to provide instruction to students who present no atypical learning needs, in other words the "average" student. However, the Ministry provides a number of special programs to assist students with special needs. A special education grant of $375 per student is built into the 2003-04 basic instructional grant to provide the funding necessary for meeting the needs of students who are gifted or who have a mild or moderate special need. With an incidence rate of roughly 10% of the student population, this translates into an additional $3750 per gifted/mild/moderate student, over and above the basic instructional grant.

For students with severe special needs, funding per student ranges from $11,709 to $13,382. Recently calculations of these program funds have been changed to reflect historical incidence patterns in order to shift diagnostic resources from administration to programming for the student.

Alberta Learning also provides a number of special program funds to offset the effects of developmental delay. Programs such as English as a Second Language, the Early Literacy Initiative, the Enhanced Opportunity Project, Teacher Assistant Program, and the Alberta Initiative for School Improvement are all programs that typically provide enriched learning opportunities for students.

Given this mix of programs that provide extraordinary supports for students, **what should Alberta Learning's program evaluation focus on – 1) the funded program, as the original MIR Schedules did, or 2) the type of student need, or both of these perspectives?**

This question is critical to the design of the Ministry's information systems, for the answer will determine what data is collected for what purposes. The thesis of this paper is that Alberta Learning's information systems must be able to organize and aggregate data on student outcomes in ways that can answer both questions. That is, student information systems should have maximum utility for determining not only how student learning needs change over time, but also in defining what programs are having the best impact and are working for students. Should Alberta Learning build this capacity into its student information systems?

The Case for Grade Level of Achievement Data – Psychometric Issues

An additional lesson learned from the MIR Schedules is the limitations of a too narrow perspective on program impact. The emphasis should be less on the inputs and the structure of inputs to student learning and more on the actual results of student learning.

In addition, with MIRS the level of analysis was simply too crude at the provincial level to assess the effectiveness of interventions in the classroom.

An alternative approach, based largely on teachers' existing work, would see the school staff routinely assessing and annually reporting students grade level of achievement in language arts and mathematics to their jurisdiction and to Alberta Learning. Existing Alberta Learning policy in the Guide to Education reinforces this, "**Teachers shall ensure that information is effectively communicated to parents about… the grade level(s) the child has achieved in relation to the grade levels of the provincial programs of study….**" (p.87). This required information may be aggregated at school, jurisdiction and provincial levels.

Furthermore, this approach to reviewing student achievement is a more relevant and meaningful way of assessing the effectiveness of the education system in meeting the learning outcomes of students. The focus is thus on student curricular achievement, while also permitting data aggregation relative to funded programs or typologies of student needs where these can be tracked to sub-sets of students. As noted in the Data Collection Initiative report (p. 26), "Accountability must be focused on the learner – if you collect the data and you can't apply it to help the learner, then why are you collecting [it]?"

However, it must be stressed that, to be included in this database, a students' program must be based on the Alberta Programs of Study for language arts and/or mathematics. That is, those very few students who have a extremely severe special need(s) and their IPP is not based on the curriculum defined in the Programs of Study then grade level of achievement data would not be relevant or required and alternative reporting data based on IPP results would be required.

An additional advantage of the proposed model of student achievement data lies in what it would contribute to the evolving professionalism underlying the Alberta accountability framework for basic education. Specifically, an integrated student achievement database would flesh out the data generated by the provincial achievement testing program with teacher-based assessment of student achievement and provide a much more dynamic, complete and enriched picture of student curricular-based learning while enhancing the professional role of teachers in this process.

However, this enrichment would not happen immediately or automatically, without support, guidance and leadership by the whole network of basic education stakeholders. The Classroom Assessment Materials Project (CAMP) and the diagnostic reading and math materials previously developed by Alberta Learning or other formative, diagnostic assessment instrument would become more important support tools for teachers. With on-going professional development and leadership supports in the schools, the professional commitment and contribution to an integrated student database would grow stronger over time.

This proposed database should not represent a big leap over existing work that teachers do, but by creating a system to routinely collect and aggregate student grade level of

achievement data some significant gaps in our knowledge about what is working for students can be illuminated

A key to a successful implementation strategy is to recognize that it is teacher-based and a component of teacher professionalism. Timeliness of student evaluation data is often an issue and it is therefore beneficial if student evaluation data can inform program evaluation and is grounded in year-end student assessments teachers make to support appropriate recommendations for grade placement. It is also important to stress that analytical options are available with each level of aggregation, thus potentially benefiting decision-makers from the classroom to the Minister of Learning.

Alberta Learning's Data Collection Initiative report (p.2) noted that stakeholders believe that learning system data collection processes are affected by unrestrained and burgeoning accountability processes driven by political, media, technology or economic forces, rather than being tied to learning outcomes. Building grade level of achievement data into the student information systems would ground learning outcomes as a fundamental component of program evaluation and the accountability framework for basic learning.

A description of the proposed data fields and related descriptions of the data fields is presented in Appendix A.

Quality Control

Inevitably questions of the validity and reliability of school-generated student achievement data must be addressed through a number of design features and quality control mechanisms. Firstly, by focusing on core curricular outcomes clearly defined and articulated in the Programs of Study, measurement is delimited to a set of universally applied learning objectives – a basic professional responsibility of Alberta teachers reinforced by existing policy. Secondly, by basing teacher judgment on a broad range and types of measures over time, the reliability of the assessment of student learning of curricular objectives is increased. Thirdly, it is expected that relatively strong positive correlations between teachers' judgment of their students' grade level of achievement and provincial achievement tests results will provide an indication of the quality of the school-based data. Recent analysis of the relationship between diploma exams and the school awarded marks demonstrate these correlations ranged from .36 to .81. Similar correlations can be established between grade level of achievement measures provided by teachers and provincial achievement test scores converted to grade equivalents, as a test of the concurrent validity of the grade level of achievement data. And, lastly, gradual implementation of the school based data initially with whole numbers and moving to quartile or quintile-based data only as the sophistication of the student assessment processes permit will help to increase accuracy over time.

Organizational and Technical Issues

A number of organizational or technical challenges will need to be overcome in revising the Ministry's student information systems. These challenges include the following:

1. Demonstrate that teachers can accurately and validly judge their students grade level of achievement relative to the learning outcomes in the programs of study.
2. Demonstrate and assess through a pilot project the reasonableness and effectiveness of basing judgments about program impacts based on students' grade level of achievement data.
3. Resolve bandwidth issues, especially for rural jurisdictions, to support large, routine data transfers to and from Alberta Learning.
4. Provide a minimum of two years of lead time to build database changes into the supporting software used by jurisdictions. Pilot projects can support phased implementation and alignment with an overall three-year implementation plan.
5. Ensure sensitivity to student data and protection of personal privacy in database design and maintenance.
6. Reflect and build upon the student reporting mechanisms already in place in schools in designing revisions to the student information systems.
7. Adopt a collaborative model of exchanging student achievement data with schools, congruent with the more interactive and collaborative model of accountability being implemented for basic education in Alberta.
8. Consider what additional in-service and system supports would be required to support implementation of revised student information system data.

Data Utility

Ideally Alberta Learning's student information systems would be completely compatible with school jurisdictions' systems and meet a comprehensive set of information needs at multiple levels of the education system; including the need to evaluate program effectiveness or how well sub-sets of the student population are learning. Currently Alberta Learning does not have the routine capacity to digitally collect and summarize student achievement information and relate it to programs or to monitor patterns of student needs, other than through ad hoc data collection mechanisms such as the MIR Schedules or through analysis of the more restricted provincial achievement tests data for students in grades 3, 6 and 9. The Data Collection Initiative report (p.5) recommended that the framework of learner-centred accountability should strategically and effectively respond to qualitative and quantitative outcomes. Grade level of achievement data has the merit of being responsive to both quantitative and qualitative data as teachers judge students' levels of achievement based on a wide range of data and assessment information.

The evaluation requirements built into the Annual Education Results Reports mean school boards must evaluate results achieved for students with special needs. Although an annual process, these reporting requirements still involve considerable ad hoc evaluation, data generation and data comparisons for school jurisdictions and thus have proven to be a challenge for school boards in meeting this reporting requirement. An integrated database submitted via the Ministry's student information systems would add considerable value to decision making at multiple levels, from classrooms, to schools and school systems and at the provincial level while reducing ad hoc data collection. It would also achieve key recommendations in the Data Collection Initiative report of helping to standardize special initiative reporting (p.24) and focusing accountability on the learner (p.26).

Learner-focused data collection also has the merit of being highly dynamic, permitting analysis of Language Arts or Mathematics achievement in relationship to any input or process variable of interest in relationship to student achievement outcomes. For example, a school or central office staff might want to determine if entry age or gender of students has a relationship to student achievement. These types of questions could be easily analyzed at the school, jurisdiction or provincial levels with the proposed database.

Basic principles for information collection and reporting were defined by Alberta Learning's Information Reporting Committee as prerequisites for the goodness of a specific data collection initiative. These principles mirror the principles discussed on pages 10-12 of the Data Collection Initiative report. Evaluation of a pilot project would need to give careful and full consideration to the relationship of these principles to the proposal to collect grade level of achievement data in Alberta Learning's student information systems.

.

	1. The cost of obtaining the information should not exceed the benefits to the key users of the information.
	2. Information requested should not exceed the level of detail required.
	3. The business need for data or information is clear.
	4. The providers of the information should be informed in advance of how the data will be used and later, about the impact of the data.
	5. Information collected should be compiled in a manner that makes it immediately available to those who provide it.
	6. Value added analysis of the data, where applicable, should be provided to those who provide it.
	7. Data collection and use must be compliant with FOIP requirements.

Information collected should have the following characteristics:	
	8. Understandability – the information can be understood by users and provides appropriate understanding of the organization;
	9. Relevance – the information is significant to the evaluation and decisions to be made;
	10. Reliability – the information is well-defined, free of error or bias, and verifiable;
	11. Comparability – the information can be compared from year to year and among similar organizations.
Requests for information should consider:	
	12. if jurisdictions and schools can collect or process the information;
	13. the availability of the data;
	14. the timelines of the request and the timeframe for providing the information;
	15. if the data captures unique information not available from other sources internal or external.

Lastly, a pilot project will need to explore the issue of data utility and answer the question, can an integrated approach ensure data utility across classroom, school, jurisdiction and provincial levels as an inherent design feature of Alberta Learning's student information system?

Recommendations

The Data Collection Initiative report (p.1) presented two key messages: firstly, that, "…Alberta Learning must exercise leadership, using today's technologies, to create and effectively manage a dynamic data collection and information management tool that facilitates a two-way interactive, real time exchange of current data." Secondly, "Data collection and information management…should relate to our business." Consistent with these key messages, the following recommendations are presented:

1. That Alberta Learning initiate a pilot project with up to four school jurisdictions to further develop and consider the advantages and disadvantages of incorporating

the data elements defined in the Beyond MIRS... document, Appendix A, as enhancements to its student information systems.

2. This report and its precursor, the *MIRS Next Generation Report*, should continue to inform the on-going consultations on a) the implementation of the Special Education Review recommendations on accountability, b) the development of indicators for the outcomes defined by the Review Committee on Outcomes; and c) the Data Collection Initiative.

3. The outcomes of the above noted pilot project and consultations, and any further required consultations, shall inform the Information and Strategic Services Division decision-makers regarding the ISS Data Collection Initiative and the redesign of the related student information systems for Alberta Learning and school jurisdictions.

Appendix A

New MIRS NG fields for SIS

Field Name	Type	Characters	Decimals
Student ID	Nominal	10	
School Year	Number	4	
Grade Level of Achievement – Language Arts	Interval	3	1
Grade Level of Achievement – Mathematics	Interval	3	1
Type of Special Need (multiple codes possible)	Coded	2	
Funded Program Applied (multiple codes possible)	Coded	2	

*Student ID and School Year – this information is already on the SIS registration but noted here to make it clear that the following information relates to a given student in a given school year, and that new information will need to be submitted for each school year.

Grade Level of Achievement – a student who is assessed as being exactly at his/her grade level would be coded 1.0 at the beginning of Grade 1, 2.0 at the end of Grade 1/beginning of Grade 2, etc. Assessment would take place at the end rather than at the beginning of each year, to permit maximum usage of the sort of assessments that are normally provided at the end of the year and to provide information for use in determining appropriate interventions for the subsequent year. The information would, however, be reported to Alberta Learning along with the other information at the beginning of the subsequent school year. This information would be reported for every student except those identified as having severe special needs and whose IPP is not based on the curriculum defined in the Programs of Study.

Type of Special Need – this would be provided based on a list of pre-set codes if there is presence of diagnosed factors that place a student in a special needs category. Students with mild, moderate or severe special needs, students who are gifted and ESL students are currently coded in the SIS (to be further reviewed in the pilot project).

Funded program applied – this would be coded whenever a student benefited directly from assistance under a special program or intervention (to be developed in the pilot project).

NOTE: Frequently students are given an intervention program well after the beginning of the school year. Thus there is a need for flexibility in allowing updates to a given year's records later in the school year or even after the year has ended.

References

Alberta Learning. (2001) *Guide to Education: ECS to Grade 12.* Edmonton, Alberta. Author.

Alberta Learning. (2001) *Guide for School Board Planning and Reporting.* Edmonton, Alberta. Author.

Alberta Learning. (2001) *MIRS Next Generation: Design Principles for a Learner Results Database for Improved Program Evaluation.* Edmonton, Alberta. Author.

Alberta Learning. (2001) *Alberta Learning Data Collection Initiative 'What we Heard' Document.* Edmonton, Alberta. Author.

Burger, J.M. and Krueger, M. (2003) "A Balanced Approach to High-Stakes Achievement Testing: An analysis of the literature with policy implications", International Electronic Journal for Leadership in Learning. University of Calgary.